



Puerto Princesa's Clean Air Program

A BEST PRACTICES CASE STUDY: THE PHILIPPINES

SUMMARY

The local government of Puerto Princesa City, in collaboration with the private sector, media, civil society organizations, and academic institutions, initiated the City's clean air program to achieve the following objectives: (a) to reduce hydrocarbon and carbon monoxide emissions from tricycles or three wheelers; (b) to effectively implement the Philippine Clean Air Act at the local level; (c) to reduce traffic congestion along major city transport routes; and (d) to improve air quality in the city.



At the core of the this program was the introduction of the "50/50 scheme" designed to reduce the volume of tricycles or three wheeler taxis plying the city streets by 50%. This plan was complemented by public awareness campaigns, roadside inspections, and the promotion of proper vehicular maintenance among drivers to reduce harmful emissions.

The program initially focused on tricycles numbering about 4000 throughout the city. The introduction of the 50/50 scheme has significantly reduced vehicular traffic congestion in the main thoroughfares, resulting in significant reduction in harmful gas emissions. Through their own organizations, tricycle drivers plying the city streets have gone through a four-month training module on proper maintenance, resulting in at least a 40% reduction in the emission of hydrocarbons and a 30% reduction in carbon monoxide emissions. The

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program is being scaled up to address all mobile and stationary sources of air pollution as the city council has recently passed a local ordinance institutionalizing the implementation of the Clean Air Act at the local level. To be led by the City Environment and Natural Resources Office, the City Clean Air Management Board (CAMB), represented by various stakeholders from the public and private sectors as well as the civil society and academe, will implement the ordinance.

SITUATION BEFORE THE INITIATIVE BEGAN

Air quality monitoring efforts performed by the Department of Environment and Natural Resources (DENR) indicated that air quality in Puerto Princesa, the capital city and economic center of Palawan, ranged from “good to fair.” Nevertheless, there were observations that ambient air quality in certain areas was deteriorating due to the increasing number of smoke belching tricycles clogging the city streets during the rush hour. If not addressed, there were fears that tricycle traffic congestion (particularly along Malvar and Rizal streets) could have a serious impact on the health of city residents as well as on the city’s tourism-driven economy.

ESTABLISHMENT OF PRIORITIES

Puerto Princesa’s clean air program prioritized the reduction of emissions from tricycles. When Mayor Hagedorn declared his commitment to initiate a clean air program in Puerto Princesa during his participation in the Bangkok study tour, it was clear to him that the program would have to start with addressing tricycle pollution as these vehicles account for 60 percent of the city’s vehicles and constitute the principal means of transport for the city’s 253,000 residents. It was a decision that was validated through extensive stakeholder consultations following his Bangkok trip. Through the passage of the City Ordinance Number 258, the program is being scaled up to cover four wheelers as well as stationary sources such as commercial and industrial establishments.

FORMULATION OF OBJECTIVES AND STRATEGIES

Puerto Princesa’s clean air program aims to achieve the following objectives: (a) to reduce hydrocarbon and carbon monoxide emissions from tricycles by 25 percent in 2005 and 50 percent in 2007; (b) to effectively implement the Clean Air Act of the Philippines at the local level; (c) to reduce traffic congestion in the city’s major thoroughfares; and (d) to address the adverse effects of air pollution in the city. These objectives are to be achieved through a five-point strategy including inspection and maintenance; improved traffic management and infrastructure development; a financing scheme for cleaner tricycle engines (e.g. buy-back scheme for old tricycles, shift to four-stroke engines); a public awareness program; and the promotion of alternative livelihood among tricycle drivers. The program initially took off on tricycle traffic volume reduction schemes (i.e. one-day rest period and the 50:50 scheme). However, after extensive consultations and technical inputs from US-AEP, a consensus emerged that the program would achieve better results by adopting a more comprehensive approach using the five strategies.

MOBILIZATION OF RESOURCES

After the Bangkok study tour, Mayor Hagedorn requested technical assistance from US-AEP to kick off the city's clean air program. In response, US-AEP hired an air quality management expert, Mike Walsh, in February 2004 to assist the city in developing an initial action plan. As part of the Walsh report, the Mayor organized a Core Group led by the City Planning and Development Office to start working on the program. Besides the city planning office, the core group is composed of the City Legal Office (for legislation); the City Environment and Natural Resources Office (for inspection and maintenance); and the traffic management group (traffic management). The mayor also invited the participation of non-government organizations including the Environmental Legal Assistance Center to assist the city in formulating a draft ordinance and the TagBalay Foundation (an environmental organization) for public awareness campaigns. TagBalay Foundation's public awareness campaigns were financed largely through a P300,000 grant from US-AEP. Likewise, extensive stakeholder consultations in the drafting of City Ordinance No. 278 were financed by a P900,000 US-AEP grant administered by The Asia Foundation. Recently, the Asian Development Bank (ADB) approved a \$260,000 grant that the city will use to develop alternative livelihood projects for tricycle drivers and their families.

PROCESS

Under the 50/50 scheme, tricycles with a number "1" sticker are allowed to operate only on Monday, Wednesday, and Friday and Sunday. Those with number "2" are allowed to operate on Tuesday, Thursday, Saturday, and Sunday. Fearing a decline in income, tricycle drivers and operators opposed the 50/50 scheme when the core group raised the idea in a public consultation in early March 2004. Tricycle drivers numbering about 4,000 (3,000 registered and 1,000 unregistered) are an influential group, representing at least a solid 12,000 potential votes. The May 10 election was coming and some city officials feared that, when not handled properly, an environmentally beneficial initiative could have a serious political backlash. As a compromise, the core group proposed that a two-week experiment be held to determine the proposed measure's impact. The tricycle drivers and operators agreed, with the caveat that the scheme be discontinued once proven to yield negative results.

After a day, drivers/operators observed that the scheme had doubled their day's income from an average of P400 to P800. Incomes of drivers who operate tricycles on "boundary basis" rose from P250 to P500. This means that in a week, the drivers have actually maintained their weekly income despite operating only for four days. The losers were the operators comprising 10 percent of the total number, as they only collect "boundary pay" thrice a week. Some commuters also complained of the limited availability of tricycles resulting in longer waiting time. Overall, the response from the general public was generally positive. After another series of consultations, the tricycle drivers and operators agreed to the 50/50 scheme provided that the local government would explore possible alternative livelihood opportunities for their families to lessen their economic dependence on the tricycles. To address commuters' concerns regarding longer commuting time, the city government raised the franchise cap to 4,000 by giving franchises to the 1,000 unregistered tricycles with the understanding that the said cap will remain unchanged in the next ten years. Having obtained the consensus, the city council passed City Ordinance No. 271 on November 30, 2004 formally adopting the 50/50 scheme.

The proposed phase-out of two-stroke engines in favor of four-strokes was a very controversial issue during the stakeholder consultations on City Ordinance No. 278. Almost six of ten tricycle-operators in Puerto Princesa favored two-strokes because they are lighter, more powerful, and less expensive

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compared to four-strokes. However, two-strokes are known to produce more pollutants because of the combustion of oil mixed with gasoline as well as the leakage of some fuel each time a new charge of air-fuel mixture is loaded in its combustion chamber. Sensing a stalemate, the Core Group instead reworded the provision stressing that the program will not ban two strokes but “encourage” the shift to four-stroke engines or “or other more efficient technology” within the next four years. This goes along with the observation that two stroke engines could actually meet current emission standards (i.e., ECE 40.01) under Clean Air Act, given adequate and proper maintenance. Also, the Core Group members think that emerging cleaner technologies (e.g., hybrid and electric engines, compressed natural gas, ethanol, among others) could render the current two-strokes-versus-four-strokes debate moot and academic.

RESULTS ACHIEVED

Traffic congestion and gridlock, particularly in major thoroughfares is now a thing of the past as a result of the 50/50 scheme. This is particularly observable in Malvar, Rizal, Fernandez, Valencia, San Pedro Streets, as well as the national highway going the city's central business district. The City Environment and Natural Resources Office is currently in the process of measuring the 50/50 scheme's impact on the city's ambient air quality. The results of these monitoring efforts are not yet available but environment officials claim the scheme may have reduced emissions of hydrocarbon and carbon monoxide by at least 50 percent, with only half the city's tricycle fleet plying the streets. Furthermore, maintenance activities conducted by tricycle federations as part of the four-module maintenance program have been shown to have reduced hydrocarbon and carbon monoxide emissions by 40 percent and 30 percent, respectively. Despite operating only for three to four days, tricycle drivers have maintained their average weekly income. The three-day break enabled them to have more time for maintenance activities as well as quality time for their families. In random interviews, drivers claim improved health conditions because of the three-day rest and less air pollution. They say that before the 50/50 scheme, they used to go home too exhausted even to partake of the family dinner. These days, they say they usually reach home still energetic enough to play with their children and help in household activities.

SUSTAINABILITY

With the passage of the City Ordinance No. 278, the Core Group feels the sustainability of the program is now assured. The ordinance mandated the creation of the City Air Management Board (CAMB) that will implement the city's clean air program covering both mobile and stationary emission sources. Both sources will have to strictly comply with the emission standards set by the Clean Air Act. Even smoking in public places will not be permitted. The city government is also mandated to promote the use of bicycles by establishing bicycle lanes within the city limits. Program components such as inspection and maintenance, as well as information and education campaigns, are now institutionalized.

The city ordinance provides that the city government, through the mayor's office, will allocate P3.5 million each year for the clean air program. This appropriation will be augmented by a trust fund that will be established through the collection of fees from motor vehicle owners and operators during routine testing. Fines and penalties imposed upon violators as well as owners whose vehicles failed to pass the standards will also form part of the trust fund. Effective stakeholder participation is also

ensured with the inclusion of the private sector, civil society groups, academic institutions, barangay chairpersons in the CAMB.

Members of the core group stress that greater awareness by the general public regarding the importance of clean air will also help ensure the sustainability of the program. Since the start of the clean air program, environmental groups like the TagBalay Foundation have been conducting public awareness campaigns using tri-media (radio, television, and print). The Foundation also has conducted teachers' training workshops on the ill effects of air and noise pollution and has prepared a training module to be incorporated into the local school curriculum. This is to ensure that the young who are the future leaders of the community will internalize the importance of maintaining a clean environment.

LESSONS LEARNED

At least four important lessons could be gleaned from the success of Puerto Princesa's Clean Air Program.

First, broader stakeholder participation and dialogue is crucial. Tricycle drivers and their organizations were highly critical of the program at the start, fearing economic dislocation. But through extensive consultations and exchange, issues and recommendations (e.g., economic impact of traffic volume reduction, alternative livelihood opportunities, health impacts) were clarified. Eventually a consensus to forge ahead with the program emerged.

Second, the political will and skill of the city's political leadership is important. The 50/50 scheme was launched a month before the May election. A misstep could have generated a serious political backlash. A less courageous politician could have waited for the election season to pass before initiating what is initially perceived as a painful policy measure. But Mayor Hagedorn did push through with the program using the two-week 50/50 experiment as a way to gauge the impact of the program and reach out to its critics. And when the positive initial results surfaced, he pressed ahead to achieve consensus by personally conducting extensive dialogues with tricycle drivers and other stakeholders.

Third, active participation by civil society groups (e.g. TagBalay Foundation, ELAC) helps in enhance community ownership of the program. Palawan has a relatively good network of nongovernmental organizations with good track records in environmental protection and conservation initiatives. This close coordination with civil society groups and local government institutions enhanced the credibility of the clean air program, making it easy to "sell" to stakeholders and the general public. Civil society participation also enabled the program to tap technical assistance and grants that sped up the implementation of some its components (e.g. public awareness campaign and legislation).

And fourth, the clean air program was launched in a social context that is relatively well prepared for such an environment-oriented program. Puerto Princesa is one of the cleanest cities in the country owing to its successful clean and green program. The city has a track record for successful environmental projects such as the sanitary landfill, forest protection, and mangrove rehabilitation. Initiating measures intended to clean the air therefore is not expected to encounter stiff resistance from the general public.

TRANSFERABILITY

The League and Cities of the Philippines have recently created an environment unit to explore the possibility of replicating Puerto Princesa's Clean Air Program in at least 10 percent of cities nationwide. So far, three cities (San Fernando in La Union, Mandaue in Cebu Province, and Calbayog in Samar) are in various stages in implementing components of Puerto Princesa's clean air program.

San Fernando's vehicle reduction program comprises the following components: the conversion of two-strokes to four-strokes tricycles; financial assistance for drivers and operators who are shifting from two strokes to four-strokes; regular air quality monitoring; continuous information dissemination campaign; the four-module maintenance training through USA-EP; loans and grants to tricycle cooperatives, and annual sputum test for tricycle drivers.

In Mandaue City, the main sources of harmful emissions are stationary, such as factories and commercial establishments. Nevertheless, the City has adopted the four-module tricycle maintenance program as a way to kick-start its own clean air program. This module aims to train tricycle drivers and operators in the proper maintenance practices for both two-stroke and four-stroke engines. Specifically, drivers and operators are being trained on how to clean spark plugs and air filters, and properly use lubricants. In the past, many drivers removed silencers and air filters to enhance the power of their two stroke engines; The module addresses these issues by stressing that these practices could actually hasten engine wear and tear through the introduction of dirt and fine particles, increase hydrocarbon and carbon monoxide emissions, and reduce engine efficiency.

Calbayog's fleet of motorcycles and tricycles is growing by 50% each year, and the Mayor is looking at Puerto Princesa's clean air program, particularly its traffic management scheme, as way to prevent traffic congestion.

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